IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Bin Zhang, et al.	Examiner: Chuks N. Onyezia
Serial No.:	10/672,953	Group Art Unit: 3691
Filed:	September 26, 2003	Docket No.: 200208037-1
Title:	Determination of a Bid Value Associated with a Selected Bidder	

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is filed in response to the Final Office Action mailed December 14, 2007 and Notice of Appeal filed on March 13, 2008.

AUTHORIZATION TO DEBIT ACCOUNT

It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's deposit account no. 08-2025.

I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

II. RELATED APPEALS AND INTERFERENCES

There are no known related appeals, judicial proceedings, or interferences known to appellant, the appellant's legal representative, or assignee that will directly affect or be directly affected by or have a bearing on the Appeal Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1 – 17 are pending in the application. Claims 3, 9, and 16 are objected to but would be allowed if written in independent form to include all the limitations of the base claim and any intervening claim. Claims 1, 2, 4-8, 10-15, and 17 are rejected. The rejection of claims 1, 2, 4-8, 10-15, and 17 is appealed.

IV. STATUS OF AMENDMENTS

No amendments were made after receipt of the Final Office Action. All amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each of the claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element or that these are the sole sources in the specification supporting the claim features.

Claim 1

A method, comprising:

obtaining historical auction data (Fig. 1, #102: obtain historical auction data that can include date of auction, description of auction items, bids from all bidders, bid winner, and amount paid: see p. 5, lines 2-5 of paragraph [0017]);

determining, from the historical auction data, a first parameter that is a function of a joint bid distribution and a density function related to the joint bid distribution (Fig. 1, #104: an estimate $\psi_k(b)$ is obtained from the historical data: see p. 5, lines 5-6 of paragraph [0017]);

selecting a bidder (Fig. 1, #106: see p. 5, line 7 of paragraph [0017]);

obtaining a value distribution for the selected bidder (Fig. 1, #108: the bidder's probability value distribution F is obtained: see p. 5, lines 8-11 of paragraph [0017]); and

solving an equation that includes the first parameter and the selected bidder's value distribution, and not the value distribution of other bidders, to compute a bid value associated with the selected bidder for a given bid (Fig. 1, #110: an equation is solved that includes $\psi_k(b)$ and the selected bidder's probability value distribution: see p. 5, lines 1-3 of paragraph [0018] and p. 6, lines 1-4 of paragraph [0018]).

Claim 2

The method of claim 1 wherein solving the equation comprises solving an ordinary differential equation that comprises a probability value distribution associated

with the selected bidder and the derivative of the probability value distribution (An ordinary differential equation (ODE) is solved for the bidder's value. This equation is shown as equation 2: see p. 3, lines 1-3 of paragraph [0011] and lines 1-3 of paragraph [0012]).

Claim 6

A system (Fig. 2, #200: p. 6, lines 1-2 of paragraph [0019]), comprising:

a processor (Fig. 2, #202: p. 6, line 3 of paragraph [0019]); and

memory containing software executable by said processor (Fig. 2, #204: p. 6, lines 4-6 of paragraph [0019]);

wherein, by executing said software, said processor computes a ratio of an estimate of a density function to an estimate of a joint bid distribution, permits a bidder to be selected, obtains a probability value distribution for the selected bidder, and solves an ordinary differential equation that includes the selected bidder's probability value distribution, and not the probability value distribution of other bidders, to compute a bid value associated with the selected bidder (p. 5, lines 1-11 of paragraph [0017]; p 5, line 1 of paragraph [0018] to p. 6, line 4 of paragraph [0018]).

Claim 8

The system of claim 6 wherein the processor solves the ordinary differential equation multiple times, each time for a different selected bidder and each time without using probability value distributions associated with other bidders (An ordinary differential equation (ODE) is solved for the bidder's value. This equation is shown as equation 2: see p. 3, lines 1-3 of paragraph [0011] and lines 1-3 of paragraph [0012]).

Claim 12

A system (example means is system #200 in Fig. 2), comprising:

means for determining a ratio of an estimate of a density function to an estimate of a joint bid distribution (example means is processor #202 of Fig. 2. An estimate $\psi_k(b)$ is obtained from the historical data: see p. 5, lines 5-6 of paragraph [0017]);

means for selecting a bidder (example means is processor #202 of Fig. 2. See p. 5, line 7 of paragraph [0017]);

means for obtaining a probability value distribution for the selected bidder (example means is processor #202 of Fig. 2. The bidder's probability value distribution F is obtained: see p. 5, lines 8-11 of paragraph [0017]); and

means for evaluating an ordinary differential equation that includes the selected bidder's probability value distribution, and not the probability value distribution of other bidders, to compute a bid value associated with the selected bidder (example means is auction AAP #220 in Fig. 2. The auction application 220 includes or calls a differential equation solver to solve the ODE: see p. 6, lines 7-9 of paragraph [0019]. An equation is solved that includes $\psi_k(b)$ and the selected bidder's probability value distribution: see p. 5, lines 1-3 of paragraph [0018] and p. 6, lines 1-4 of paragraph [0018]).

Claim 14

A computer readable storage medium storing instructions that when executed by a processor cause the processor to determine a bid value for a bidder of a action, said instructions comprising:

an instruction usable to obtain previously acquired auction information (Fig. 1, #102: obtain historical auction data that can include date of auction, description of auction items, bids from all bidders, bid winner, and amount paid: see p. 5, lines 2-5 of paragraph [0017]);

an instruction usable to determine, from the previously acquired auction information, a first parameter that is a function of a joint bid distribution and a density function related to the joint bid distribution (Fig. 1, #104: an estimate $\psi_k(b)$ is obtained from the historical data: see p. 5, lines 5-6 of paragraph [0017]);

an instruction usable to determine a bidder (Fig. 1, #106: see p. 5, line 7 of paragraph [0017]);

an instruction usable to obtain a value distribution for the determined bidder (Fig. 1, #108: the bidder's probability value distribution F is obtained: see p. 5, lines 8-11 of paragraph [0017]); and

an instruction usable to solve an equation that includes the first parameter and the determined bidder's value distribution, and not the value distribution of other bidders, to compute a bid value associated with the determined bidder for a given bid (Fig. 1, #110: an equation is solved that includes $\psi_k(b)$ and the selected bidder's probability value distribution: see p. 5, lines 1-3 of paragraph [0018] and p. 6, lines 1-4 of paragraph [0018]).

Claim 15

The storage medium of claim 14 wherein the instruction usable to solve the equation comprises an instruction usable to solve an ordinary differential equation (An ordinary differential equation (ODE) is solved for the bidder's value. This equation is shown as equation 2: see p. 3, lines 1-3 of paragraph [0011] and lines 1-3 of paragraph [0012]).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 2, 4-8, 10-15, and 17 are rejected under 35 USC § 102(e) as being unpatentable over USPN 7,096,197 (Messner).

VII. ARGUMENT

The rejection of claims 1, 2, 4-8, 10-15, and 17 is improper, and Applicants respectfully request reversal of these rejections.

The claims do not stand or fall together. Instead, Applicants present separate arguments for various claims. Each of these arguments is separately argued below and presented with separate headings and sub-heading as required by 37 C.F.R. § 41.37(c)(1)(vii).

Claim Rejections: 35 USC § 102(e)

Claims 1, 2, 4-8, 10-15, and 17 are rejected under 35 USC § 102(e) as being unpatentable over USPN 7,096,197 (Messner). Applicants respectfully traverse.

Each of the claims recites numerous recitations that are taught in Messner. Some examples are provided below with respect to the claims separately argued below with separate sub-headings.

Sub-Heading: Claims 1, 4-7, 10-14, and 17

Claim 1 is representative of this group and is selected for discussion.

As one example, claim 1 recites using historical auction data to determine "a first parameter that is a function of a joint bid distribution and a density function related to the joint bid distribution." Messner does not teach this element.

Messner discloses an analysis to predict whether a bid can be expected to be a winning bid (9: 16-18). Messner mentions that the analysis "takes into account past history in bidding against known competitors and information on various types of assets preferred by competing bidders" (10: 1-4). Messner, however, does not further describe in detail how this past historical information is used in the analysis.

In contrast to Messner, claim 1 recites specific limitations regarding how the historical auction data is used to compute a bid value for a selected bidder. Specifically, claim 1 recites using historical auction data to determine "a first parameter that is a function of a joint bid distribution and a density function related to the joint bid distribution." Messner never teaches that historical auction data is used in this manner.

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Again, Messner merely mentions that the analysis takes in account past history of bidding.

Anticipation under section 102 can be found only if a single reference shows exactly what is claimed (see *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985)). For at least these reasons, the independent claims and their dependent claims are not anticipated by Messner.

As another example, claim 1 recites "solving an equation that includes the first parameter and the selected bidder's value distribution, and not the value distribution of other bidders, to compute a bid value associated with the selected bidder for a given bid." The previous element in claim 1 further recites that the first parameter is a function of a joint bid distribution and density function. Thus, by combining these two elements, claim 1 recites a specific method for solving the equation to compute a bid value associated with the selected bidder for a given bid. The equation includes a joint bid distribution, a density function, and the selected bidder's value distribution. Messner does not teach these three different elements in an equation for computing a bid value associated with a selected bidder.

The Examiner cites Messner at column 9, lines 39-50 for allegedly teaching the equation as recited in claim 1. Applicants respectfully disagree.

Messner at column 9, lines 39-50 teaches that ranges of bids are expressed as a statistical distribution. The distribution is sampled to simulate auction scenarios. By contrast, the equation in claim 1 includes three distinct elements: a joint bid distribution, a density function, and the selected bidder's value distribution. Messner does not consider these three different elements to simulate the auction scenarios. Again, Messner considers the statistical distribution of bid values and samples these values to generate simulated auction results. This technique taught in Messner is very different than the equation recited in claim 1. Again, claim 1 recites a specific method for solving the equation to compute a bid value associated with the selected bidder for a given bid. The equation includes three different elements: a joint bid distribution, a density function, and the selected bidder's value distribution. The Examiner has failed to show where Messner teaches these three different elements.

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For a prior art reference to anticipate under section 102, every element of the claimed invention must be identically shown in a single reference (see *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990)). For at least these reasons, the independent claims and their dependent claims are not anticipated by Messner.

Sub-Heading: Claims 2, 8, 15

As yet some further examples, dependent claims 2, 8, and 15 recite solving ordinary differential equations. The Examiner cites Messner at column 9, lines 48-61. Applicants have reviewed this section of Messner but find no mention or teaching of solving ordinary differential equations to compute a bid value associated with a selected bidder.

The Examiner cites Messner at column 9, lines 48-61. This section of Messner discusses that the distribution outcome includes a probability of winning. Nowhere does Messner teach that an ordinary differential equation is solved to compute a bid value or even the probability of winning.

Anticipation is established only when a single prior art reference discloses each and every element of a claimed invention united in the same way (see *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984)). For at least these reasons, dependent claims 2, 8, and 15 are not anticipated by Messner.

CONCLUSION

In view of the above, Applicants respectfully request the Board of Appeals to reverse the Examiner's rejection of all pending claims.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. 832-236-5529. In addition, all correspondence should continue to be directed to the following address:

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VIII. Claims Appendix

1. A method, comprising:

obtaining historical auction data;

determining, from the historical auction data, a first parameter that is a function of a joint bid distribution and a density function related to the joint bid distribution;

selecting a bidder;

obtaining a value distribution for the selected bidder; and

solving an equation that includes the first parameter and the selected bidder's value distribution, and not the value distribution of other bidders, to compute a bid value associated with the selected bidder for a given bid.

2. The method of claim 1 wherein solving the equation comprises solving an ordinary differential equation that comprises a probability value distribution associated with the selected bidder and the derivative of the probability value distribution.

3. The method of claim 1 wherein solving the equation comprises solving d $\log F_k(\psi_k(b))/db + 1/(\psi_k(b) - b) = \Psi(b)$ where $\Psi(b)$ comprises the first parameter, b is a bid, $\psi_k(b)$ is the selected bidder's value distribution, k is an index identifying the selected bidder, and $F_k(\psi_k(b))$ is the probability value distribution for the selected bidder, and wherein $\Psi(b)$ is a ratio of the joint bid distribution and to the density function and is solved to compute the bid value associated with the selected bidder for the given bid.

4. The method of claim 1 wherein determining a first parameter comprises computing a

ratio of the density function to the joint bid distribution.

5. The method of claim 1 further comprising repeating the acts of selecting a bidder, obtaining a probability value distribution for the selected bidder and solving the equation for additional bidders.

6. A system, comprising:

a processor; and

memory containing software executable by said processor;

wherein, by executing said software, said processor computes a ratio of an estimate of a density function to an estimate of a joint bid distribution, permits a bidder to be selected, obtains a probability value distribution for the selected bidder, and solves an ordinary differential equation that includes the selected bidder's probability value distribution, and not the probability value distribution of other bidders, to compute a bid value associated with the selected bidder.

7. The system of claim 6 wherein the ordinary differential equation comprises the ratio.

8. The system of claim 6 wherein the processor solves the ordinary differential equation multiple times, each time for a different selected bidder and each time without using probability value distributions associated with other bidders.

9. The system of claim 6 wherein the equation comprises:

d logF$_k$(ψ_k(b))/db + 1/(ψ_k(b) − b) = Ψ(b) where Ψ(b) comprises the ratio, b is a bid, ψ_k(b) is the selected bidder's value distribution, k is an index identifying the selected bidder, and F$_k$(ψ_k(b)) is the probability value distribution for the selected bidder, and wherein Ψ(b) is the ratio of the joint bid distribution and to the density function and is solved to compute the bid value associated with the selected bidder for a given bid.

10. The system of claim 6 wherein computing the ratio comprises obtaining historical bid data.

11. The system of claim 6 wherein the processor determines a reserve price based on the computed bid value.

12. A system, comprising:

      means for determining a ratio of an estimate of a density function to an estimate of a joint bid distribution;

      means for selecting a bidder;

      means for obtaining a probability value distribution for the selected bidder; and

      means for evaluating an ordinary differential equation that includes the selected bidder's probability value distribution, and not the probability value distribution of other bidders, to compute a bid value associated with the selected bidder.

13. The system of claim 12 further including means for obtaining historical bid data to be used by the means for determining the ratio.

14. A computer readable storage medium storing instructions that when executed by a processor cause the processor to determine a bid value for a bidder of a action, said instructions comprising:

an instruction usable to obtain previously acquired auction information;

an instruction usable to determine, from the previously acquired auction information, a first parameter that is a function of a joint bid distribution and a density function related to the joint bid distribution;

an instruction usable to determine a bidder;

an instruction usable to obtain a value distribution for the determined bidder; and

an instruction usable to solve an equation that includes the first parameter and the determined bidder's value distribution, and not the value distribution of other bidders, to compute a bid value associated with the determined bidder for a given bid.

15. The storage medium of claim 14 wherein the instruction usable to solve the equation comprises an instruction usable to solve an ordinary differential equation.

16. The storage medium of claim 15 wherein the instruction usable to solve the equation comprises an instruction usable to solve $d \log F_k(\psi_k(b))/db + 1/(\psi_k(b) - b) = \Psi(b)$ where $\Psi(b)$ comprises the first parameter, b is a bid, $\psi_k(b)$ is the selected bidder's value distribution, k is an index identifying the selected bidder, and $F_k(\psi_k(b))$ is the probability value distribution for the selected bidder, and wherein $\Psi(b)$ is a ratio of the joint bid distribution and to the density function and is solved to compute the

bid value associated with the selected bidder for the given bid.

17. The storage medium of claim 15 wherein the instruction usable to determine the first parameter comprises an instruction usable to compute a ratio of an estimate of the density function to an estimate of the joint bid distribution.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.